# CONTENTS

## Volume 14, Issue Nos. 1-12

# SOFTWARE—PRACTICE & EXPERIENCE

# Issue No. 1, JANUARY

Editorial	1
Three Solutions for a Robot Arm Controller Using Pascal-Plus, occam and Edison: J. M. Kerridge and D. Simpson	3
A Portable Virtual Machine for Ada: L. Ibsen	17
Perseus: Retrospective on a Portable Operating System: W. Zwaenepoel and K. A. Lantz.	31
Persistent Object Management System: W. P. Cockshott, M. P. Atkinson, K. J. Chisholm, P. J. Bailey and R. Morrison	49
Andra: The Document Preparation System of the Personal Workstation Lilith: J. Gutknecht and W. Winiger	73
Issue No. 2, February	
The Pascal Graphics System: C. K. Yip.	101
PEP: An Interactive Programming System with an Algol-like Programming Language: P. W. E. Verhelst and N. F. Verster	119
Concurrent Communication and Synchronization Mechanisms: R. Williamson and E. Horowitz	135
Application of an Optimistic Concurrency Control Method: M. L. Kersten and H. Tebra	153
Calculation of Co-ordinates for Optimal Hatching: G. Vörös	169
The Design of an Interactive Program Development System for Pascal: B. Nordström and A. Wikström	177
A Shorthand Preprocessor for IDMS COBOL: M. G. Wyatt	191
Book Reviews	195

# Issue No. 3, MARCH

Toward Complete Programming Language Descriptions that are both Formal	
and Understandable: F. G. Pagan	199
Implementation of Predicate-based Protection in MULTISAFE: H. R. Hartson	207
A Semantically-based Formatting Discipline for Pascal: P. A. Bailes and A. Salvadori	235
A LIS Compiler for GCOS-7: B. Henin, D. Couprie and P. Douspis	253
The Application of Halstead's Software Science Theory to Algol 68 Programs:	
M. R. Woodward	263
An Interactive Data Visualization System: D. Thalmann	277
Preprocessing Embedded Actions: R. Sethi	291
Issue No. 4, APRIL	
The PHS Protocol: M. Purser, C. Horn and J. Sheehan	299
Allocating Computer Resources to Satisfy User and Management Demands: R. Posch and G. Haring	311
Experience with a Portable Debugging Tool: J. L. Steffen	323
A Methodology and Notation for Compiler Front End Design: C. A. Brown and P. W. Purdom, Jr.	335
Attributed Linear Intermediate Representations for Retargetable Code Generators: M. Ganapathi and C. N. Fischer	347
Immediate Files: S. J. Mullender and A. S. Tanenbaum	365
Guarded and Unguarded Coroutines: an Implementation in BCPL: A. J. Fischer	369
An Economical Implementation of the High Level Real-time Language PEARL on Microcomputers: Intel RMX86-PEARL: P. Heine and F. Kaiser	377
Mixed Language Programming: B. Einarsson and W. M. Gentleman	383

VOLUME CONTENTS	v
Short Communication	397
Book Reviews	399
Issue No. 5, MAY	
Integrating Library Modules into Pascal Programs: M. Ancona, L. De Floriani, G. Dodero and S. Mancosu	401
Concurrent Programming in the Ada Language: The Polling Bias: N. H. Gehani and T. A. Cargill	413
Exception Handling—A Static Approach: J. L. Knudsen	429
Designing Software for Children: R. M. McKeag, A. Eves and E. J. Rooney	451
The 'Completeness' of the Pascal Test Suite: Z. J. Ciechanowicz and A. C. De Weever	400
UCSD Pascal on the VAX, Portability and Performance: D. R. Perkins and D. Volper	473
A Flexible Command Generation Technique for Application in Dialogue Systems: G. Pfeiffer	483
Two Implementations of the Ada Program Library: J. S. Briggs	491
Book Review	501
Issue No. 6, June	
Reference Count Garbage Collection: T. W. Christopher	. 503
Exploiting Partial Order with Quicksort: R. G. Dromey	. 509
A Software Development System Based on a Macroprocessor: E. Barcucci and G. Pelacani	
Software Engineering in a Development Group: G. Ringland	. 533
The Evaluation of Software Systems' Structure Using Quantitative Software Metrics: S. Henry and D. Kafura	
Automatic Generation of Make Dependencies: K. Walden	. 575

-

cal Fields: J. E. M. Hamilto		hics.	Syste	m to	the !	Displ	ay of	Mete	orolo	gi-	587
Letters to the Editor .											601
Book Reviews								٠			601
		Issue	No.	7, Ju	LY						
Adam: An Ada-based Langua Von Henke, H. J. Larsen an						D. C	Luc	ekhan	n, F.	W.	605
Implementation of a Pascal Computer: A. Ardö and L.				l La	nguag	ge for	a M	Iultip	roces	sor	643
A Standard Pascal Event Sim	ulat	ion I	Packa	ge: B	. W.	Mars	den				659
Using Ada for Discrete Event	t Sir	mula	tion:	G. B	runo						685
PL/I as a Discrete Event Sim	ulat	ion '	Tool:	A. H	lać.	,			*		697
Book Review											703
		Issue	No.	8, Au	GUST						
Steady-State Compilers: B. J.	Con	rneli	us, I.	R. L	owma	an an	d D.	J. Ro	bson		705
The Use of Ghost Variables a and Verification of Program							he Do	ocum	entati	ion	711
Anatomy of an Educational N	etw	ork I	Datab	ase S	ysten	n: J. 1	L. Jol	nnson			739
Compile-Time Detection of A	Alias	sing i	in Eu	clid l	Progra	ams:	J. R.	Cord	у.		755
A General Approach to Queui	ng i	n C.	S.P.:	M. E	. C. I	Hull a	nd R	. M. I	McKe	eag	769
Taming the PL/I Syntax: B.	L. N	Aarks	s .								775
Resource Monitors: A Design	Met	thodo	ology	for O	perat	ing S	ysten	ns: A.	Pash	tan	701

37/01/1	173.412	CORE	TENTS

vii

# Issue No. 9, SEPTEMBER

Programs to Process Trees, Representing Program Structures and Data Structures: A. D. Wilson	807
An Electronic Secretary: I. Sommerville and D. J. Smith	817
Separating Policy from Correctness in Concurrency Control Design: J. T. Robinson	827
A Simulator for Real-time Software Debugging and Testing: J. C. Huang, M. Ho and T. Law	845
Register Allocation and Exhaustive Peephole Optimization: J. W. Davidson and C. W. Fraser	857
Implementing a Scaler C Compiler on the Cyber 205: Kuo-Cheng Li and H. Schwetman	867
Transducers are Type-converters: I. C. Pyle	889
Experience with Remote Procedure Calls in a Real-time Control System: B. E. Carpenter and R. Cailliau	901
Issue No. 10, OCTOBER	
Compact Coding of Syntax Tables: J. F. Contla	909
Top-Down Design Within a Functional Environment: P. Leith	921
Distributing and Revoking Access Authorizations on Abstract Objects: A Capability Approach: P. Corsini, G. Frosini and L. Lopriore	931
Implementation of the Database Programming Language Modula/R on the Personal Computer Lilith: M. Reimer.	945
An Experiment in Language Design for Distributed Systems: D. Crookes and J. W. G. Elder	957
Polymorphic Programming I. Another Language Designed on Semantic Principles: D. M. Harland and H. I. E. Gunn	973
Short Communications	999
Issue No. 11, November	
Implementing a File Transfer Protocol between PDP11 and PRIME 550 Computers: J. B. Ju and K. D. Baker	1009
Polymorphic Programming II. An Orthogonal Tagged High Level Architecture Abstract Machine: H. I. E. Gunn and D. M. Harland	1021

A Portable PDP-11 Simulator: J. K. Doyle and K. I. Mandelberg	1047
Concurrent C: A Programming Language for Distributed Multiprocessor Systems: Y. Tsujino, M. Ando, T. Araki and N. Tokura	1061
Dedicated, Distributed and Portable Operating Systems: a Structuring Concept: G. Valdorf	1079
A Language Independent Error Recovery Method for LL(1) Parsers: M. Spenke, H. Mühlenbein, M. Mevenkamp, F. Mattern and C. Beilken	1095
Short Communication	1109
Issue No. 12, December	
Editorial	1111
QS: a Tool for General Data Input: M. E. Dewey	1113
The StarMod Distributed Programming Kernel: T. J. LeBlanc, R. H. Gerber and R. P. Cook	1123
P/CL: A Flexible Input Processor: H. F. R. Arciszewski and E. M. Van Gasteren	1141
Avoiding Trickle-down Recompilation in the Mary2 Implementation: M. Rain	1149
A Source Code Control System Based on Semantic Nets: D. C. Ince	1159
A Simple Equation Solver and its Application to Financial Modelling: E. Derman and C. J. Van Wyk	1169
Operating System Support for Sharing Writable Control Store: R. I. Winner and L. B. Reed	1183
WSH-A New Command Interpreter for UNIX: J. B. Bresnahan, D. T. Barnard and I. A. Macleod	1197
Author Index	1207
Key Word Index	1200

